2005 Annual Drinking Water Quality Report

Moore County Department of Public Utilities
Pinehurst Water System - PWSID No. 03-63-108
May 1, 2006

We're pleased to provide you with this year's Annual Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide to you a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources.

A Wellfield Protection Ordinance is in effect for the Village of Pinehurst. This ordinance is a very important step to protect our drinking water quality and quantity. For more information on the Wellfield Protection Ordinance, please call (910) 295-1900. We are committed to ensuring the quality of your water and to providing you this information.

What EPA Wants You to Know

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the **Safe Drinking Water Hotline (800-426-4791)**.

Is it safe to drink?

YES! We're pleased to report that our drinking water is safe, and meets federal and state requirements. EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It's important to remember that the presence of these contaminants does not necessarily pose a health risk.

When You Turn on Your Tap, Consider the Source

Our water sources are ground water and surface water. Our 20 wells draw from the Middendorf Aquifer, and we purchase water from the Town of Southern Pines, which is treated surface water from Drowning Creek. We also purchase water from the Town of Aberdeen, which is ground water from the Middendorf Aquifer. The following table lists well and interconnection locations.

Water Source	Location	Water Source	Location
Well 2A	175 McKenzie Rd. West	Well 14	NC 5 Hwy./Pinehurst C.C.
Well 4	212 Ridgewood Rd.	Well 15	NC 5/NC 211 Hwy.
Well 5	60 Palmetto Rd.	Well 16	Diamondhead Dr. South/Jade Ct.
Well 6	Trotter Dr./Wentworth Circle	Well 17	Kahkwa Trail/Sakonett Trail
Well 7	3 Brookhaven Rd.	Well 18	Idlewild Rd./Bob O'Link Rd.
Well 8	105 Power Plant Rd.	Well 19	831 Linden Rd.
Well 9	10 Muster Branch Rd.	Pinewild Well 1	10 Talladale Court
Well 10	Hilliard Rd./Airport Rd.	Well 21	345 Foxfire Rd.
Well 11	605 Monticello Dr.	Well 22	200 Short Rd.
Well 12	End of Diamondhead Dr. South	Southern Pines	105 Dr. Neal Rd.
Well 13	Forest Lane	Aberdeen	125 Dawkins St.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for Moore County Public Utilities – Pinehurst was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area.). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating
Well 2A	Moderate
Well 4	Moderate
Well 5	Moderate
Well 6	Moderate
Well 7	Moderate
Well 8	Moderate
Well 9	Moderate
Well 10	Moderate
Well 11	Moderate
Well 12	Moderate
Well 13	Moderate
Well 14	Moderate
Well 15	Moderate
Well 16	Moderate
Well 17	Moderate
Well 18	Moderate
Well 19	Moderate
Well PW1	Moderate
Well 21	Moderate
Well 22	Moderate

The complete SWAP Assessment report for Moore County Public Utilities – Pinehurst may be viewed on the Web at: http://www.deh.enr.state.nc.us/pws/swap To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh NC 27699-1634, or email request to swap@ncmail.net. Please indicate your system name, PWSID, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-715-2633. It is important to understand that a susceptibility rating of "higher" does not imply poor water quality, only the systems' potential to become contaminated by PCS's in the assessment area.

Violations that Your Water System Received for the Report Year

During 2005 or any compliance period that ended in 2005, we received an MCL violation for Combined Radium **at Wells 5 and 9 ONLY**. The average level of Combined Radium from **January 1 through December 31, 2005 was 9.55 pCi/l at Well 5 and 5.15 pCi/l at Well 9 only. All other wells are currently testing below the limit.**

Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. Radium naturally occurs in some drinking water sources. The radionuclide monitoring requirements under the new rule that became effective December 8, 2003 requires analysis to be collected at each entry point or well instead of one representative sample from the distribution system. Initial compliance monitoring is based upon four consecutive quarters calculated as an average.

We are working with the North Carolina Department of Environment and Natural Resources, our well drilling contractors, laboratories, engineers and consultants to evaluate the ground water supply and research options to correct the problem. **As of February 22, 2005 we have stopped using Wells 5 and 9 and we will purchase supplemental bulk water when necessary to replace the water supply lost from Wells 5 and 9.**
WATER SUPPLY UPDATE! Permanent abandonment of Pinehurst Well 5 was completed on January 25, 2006. We are in the process of drilling a test well for the purpose of construction of a replacement well which would be called Pinehurst Well 5A. The new well site is located approximately 300 feet west of the old Pinehurst Well 5 site on the No. 2 golf course. The project involves blending of the waters from Pinehurst Well 5A and Pinehurst Well 9 to achieve compliance with EPA drinking water standards. The addition of Pinehurst Wells 5A and 9 would increase capacity by approximately 0.5 million gallons per day. Engineering and design continues on the proposed bulk water purchase interconnection with the East Moore Water District. Estimated completion of this project is May 2007 and will increase capacity by approximately 1.0 million gallons per day for our Pinehurst water system.
If you would like more information about Combined Radium, please call the EPA Hotline at 1-800-426-4791.

What if I have any questions or would like to become more involved?

If you have any questions about this report or concerning your water utility, please contact **Ben Vaughn at (910) 947 - 6315**. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the first Monday of each month at 2:00 p.m., and the third Monday of each month at 6:00 p.m. in the Commissioners' Meeting Room, Second floor - Historic Courthouse, Courthouse Circle, Carthage, North Carolina.

Water Quality Data Table of Detected Contaminants

We routinely monitor for over 121 substances in your drinking water according to Federal and State laws. The following tables list all the drinking water contaminants that we **detected** in the last round of sampling for the particular contaminant group. The presence of contaminants does **not** necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in these tables is from testing done **January 1st to December 31st, 2005**. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentration of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Important Drinking Water Definitions:
Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level - "Maximum Allowed" (MCL) is the highest level of a substance that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal" (MCLG) is the level of a substance in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfection Level – The "Highest Level" (MRDL) of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal – The "Level" (MRDLG) of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Unit (NTU) - a nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person. (Applies to the water we purchase from Southern Pines)

Not-Applicable (N/A) – Information not applicable/not required for that particular water system or for that particular Rule.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years, or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water. (Applies to the water we purchase from Southern Pines)

DETECTED SUBSTANCES TEST RESULTS

Contaminant	Violation Y/N	Your Water	Units	MCLG	MCL	Likely Source of Contamination
Turbidity – regulated at the Southern Pines Water Plant – 2005						
Turbidity	N	0.23 100 %	NTU	N/A	TT =0.3 NTU TT = Percentage of samples < 0.3 NTU	Soil runoff
Radiological Substances – regulated at the Water Plant/Well						
Contaminant (units)	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/l) **(2005)**	N	2.26	0 10.3	0	15	Erosion of natural deposits
Beta/photon emitters (pCi/l) **(2003)**	N	2.34	0 11.8	0	50	Decay of natural and man-made deposits
Combined Radium (pCi/l) **(2005) Violation at Wells 5 and 9 only.**	Y	4.15	0 15.3	0	5	Erosion of natural deposits
Uranium (pCi/l) **(2005)**	N	0.15	0 2.0	0	20.1	Erosion of natural deposits
Inorganic Substances – regulated at the Water Plant/Well – 2005						
Contaminant (units)	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm) IN WATER PURCHASED FROM ABERDEEN AND SOUTHERN PINES ONLY.	N	0.10	0 1.20	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	N	1.48	0 3.35	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Lead and Copper Contaminants – regulated at the user's tap						
Contaminant (units)	Sample Date(s)	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90^{th} percentile)	August & September 2003	0.281	0 of 30	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Pesticides and Synthetic Organic Chemical Substances – regulated at the Water Plant/Well – 2005						
Contaminant (units)	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Di(2-ethylhexyl)phthalate (ppt) (Detected in Aberdeen water only)	N	0.05	0 1.94	0	600	Discharge from rubber and chemical factories
Dibromochloropropane (ppt) (Detected in Pinehurst Well 8 only)	N	1.31	0 52	0	200	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards

Pesticides and Synthetic Organic Chemical Substances – regulated at the Water Plant/Well – 2005 (Continued)						
Contaminant (units)	MCL Violation Y/N	Your Water	Range Low	High	MCL G	MCL	Likely Source of Contamination
Heptachlor epoxide (ppt) (Detected in Aberdeen water only)	N	0.7	0	27	0	200	Breakdown of heptachlor
Lindane (ppt) (Detected in Aberdeen water only)	N	2.7	0	82	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
Pentachlorophenol (ppt) (Detected in Pinehurst Well 8 only)	N	1.96	0	74.6	0	100	Discharge from wood preserving factories
2,4-D (ppb) (Detected in Aberdeen water only)	N	0.006	0	0.22	70	70	Runoff from herbicide used on row crops
Volatile Organic Chemical Contaminants - regulated at the Water Plant/Well - 2005						
Trichloroethylene (ppb) (Detected in Aberdeen water only)	N	0.018	0	0.0073	0	5	Discharge from metal degreasing sites and other factories
Xylenes (Total) (ppm) (Detected in Aberdeen water only)	N	0.0003	0	0.01	10	10	Discharge from petroleum factories; discharge from chemical factories

Disinfection Byproduct Contaminants – regulated at the user's tap - 2005					
Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Chloramines (ppm) (Detected in Southern Pines water only)	N	0.94	MRDLG = 4	MRDL = 4	Water additive used to control microbes
Chlorine (ppm)	N	0.93	MRDLG = 4	MRDL = 4	Water additive used to control microbes
HAA5 (ppb) [Haloacetic Acids]	N	11.66	0	60	By-product of drinking water chlorination
TTHM (ppb) [Total Trihalomethanes]	N	9	0	80	By-product of drinking water chlorination
Total Organic Carbon (ppm) (TOCs)-RAW (Detected in Southern Pines water only)	N	9.38	N/A	TT	Naturally present in the environment
Total Organic Carbon (ppm) (TOCs)-TREATED (Detected in Southern Pines water only)	N	4.41	N/A	TT	Naturally present in the environment

Unregulated contaminant monitoring assists EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. **If you would like more information on unregulated chemicals, please call the EPA Hotline at 1-800-426-4791.**

Unregulated Volatile Organic Chemicals - tested at the Water Plant/Well - 2005				
Contaminant (units)	Your Water	Range Low	High	Proposed MCL
Bromodichloromethane (ppb)	0.62	0	3.1	N/A
Chloroform (ppb)	6.9	0	34.4	N/A
Chloromethane (ppb)	0.3	0	1.5	N/A

Unregulated Contaminant Monitoring Rule - UCMR - 2003				
Contaminant (units)	Your Water	Range Low	High	Proposed MCL
DCPA degradates (ppb) (Detected at Pinehurst Well 5 only)	0.072	0	2.86	N/A

Secondary contaminants, required by the NC Public Water Supply Section, are substances that affect the taste, odor and/or color of drinking water. These aesthetic contaminants normally do not have any health effects and normally do not affect the safety of your water.

Water Characteristics – regulated at the Water Plant/Well – 2003 through 2004

Contaminant (units)	Your Water	Range Low	Range High	Secondary MCL
Iron (ppm)	0.0435	0	0.087	0.3
pH	7.68	6.55	8.60	6.5 to 8.5
Sodium (ppm)	17.6	10.6	23	N/A

List of All Required Contaminants

Testing requirements and frequencies are based on type of water used, size of population, purchase system versus non-purchase systems, detection of a contaminant, state-wide sampling waivers, previous sampling history--reduced monitoring permission, etc.

Regulated Contaminants--have an allowable limit (Maximum Contaminant Level {MCL}))

Microbiological--every month
Total Coliform Fecal/E. Coli--as needed Turbidity--certain systems--every 4 hours

Radiological--every 4 years
Gross Alpha Gross Beta--certain systems Combined Radium--as needed Uranium - as needed

Inorganics--certain systems--every year or every 3 years or every 9 years
Antimony Barium Cadmium Cyanide Mercury Thallium
Arsenic Beryllium Chromium Fluoride Selenium
Nitrate--certain systems--every year Nitrite--certain systems--one time Asbestos--certain systems--every 9 years
Lead and Copper--every 6 months or every year or every 3 years

Total Trihalomethanes--certain systems--every quarter or every year
Chloroform Bromoform Chlorodibromomethane Bromodichloromethane
(These 4 contaminants results added together equal the Total Trihalomethanes)

Synthetic Organic Chemicals (SOCs) including pesticides and herbicides--certain systems--every quarter or every year or every 3 years

2,4-D	2,4,5-TP (Silvex)	Alachlor	Atrazine	Benzo (a) pyrene(PAH)
Carbofuran	Chlordane	Dalapon	Di(2-ethyhexyl)adipate	Di(2-ethyhexyl)phthalate
Dineseb	Endrin	Heptachlor	Heptachlor epoxide	Hexachlorobenzene
Lindane	Methoxychlor	Oxamyl (Vydate)	Pentachlorophenol	Hexachlorocyclo-pentadiene
Simazine	Picloram	Toxaphene	Polychlorinated biphenyls(PCBs)	
Dibromochloropropane(DBCP)--certain systems			Ethylene dibromide (EDB)--certain systems	
Acrylamide--certain systems			Epichlorohydrin--certain systems	
Diquat--State-wide waiver			Endothall--State-wide waiver	
Glyphosate--State-wide waiver			Dioxin (2,3,7,8-TCDD)--certain systems	

Volatile Organic Chemicals(VOCs)--certain systems--every quarter or every year or every 3 years

Benzene	Carbon tetrachloride	Chlorobenzene	o-Dichlorobenzene	p-Dichlorobenzene
1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Dichloromethane
1,2-Dichloropropane	Ethylbenzene	Stryene	Tetrachloroethylene	Toluene
Vinyl Chloride	1,1,2-Trichloroethane	Trichloroethylene	Total Xylenes	
1,2,4-Trichlorobenzene		1,1,1-Trichloroethane		

Unregulated Contaminants--no allowable limit (MCL)
Unregulated Inorganics--certain systems--every year or every 3 years or every 9 years
Sulfate

Unregulated SOCs--certain systems--every quarter or every year or every 3 years

Aldicarb	Aldicarb sulfone	Aldicarb sulfoxide	Aldrin	Butachlor
Carbaryl	Dicamba	Dieldrin	3-Hydroxycarbofuran	Methomyl
Metolachlor	Metribuzin	Propachlor		

Unregulated VOCs--certain systems--every quarter or every year or every 3 years

Chloroform	Bromoform	Bromodichloromethane	1,3,5-Trimethylbenzene
Chlorodibromomethane	Bromobenzene	Bromochloromethane	1,2,3-Trichlorobenzene
Bromomethane	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trichloropropane
Tert-Butylbenzene	Chloroethane	Chloromethane	1,2,4-Trimethylbenzene
o-Chlorotoluene	p-Chlorotoluene	Dibromomethane	n-Propylbenzene
M-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,1,2,2-Tertachloroethane
1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	1,1,1,2-Tertachloroethane
1,3-Dichloropropene	Fluorotrichloromethane	Hexachlorobutadiene	Isopropylbenzene
p-Isopropyltoluene	Naphthalene		

Total Haloacetic Acids--certain systems—every quarter or every year

Monochloroacetic Acid Dichloroacetic Acid Trichloroacetic Acid Monobromoacetic Acid Dibromoacetic Acid
(These 5 contaminants results added together equal the Total Haloacetic Acids)

Secondary Contaminants/Water Characteristics--certain systems--every year or every 3 years or every 9 years

Iron--has MCL Manganese--has MCL Nickel--no MCL Sodium--no MCL pH--has a range

We, at Moore County Department of Public Utilities, work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life, and our children's future. Please call our office at **(910) 947-6315** if you have questions.